

**REMARKS**

Claims 1 and 4-21 have been examined and stand rejected.

**Claim Rejections - 35 U.S.C. § 103**

The Examiner rejected claims 1-4, 6-10, 14-16 and 21 under §103(a) as being unpatentable over Moore (US 6,064,003) in view of Knapp (4,521,064).

Claim 1 recites, *inter alia*, the impedance control means is a foam resin controlling an impedance in terms of a foam ratio that is selected so that an impedance of the connection portions substantially match the impedance of the covering of the conductor.

The Examiner alleges Moore fails to teach or suggest the impedance of the foam element being closer to the impedance of the covering, but alleges that Knapp teaches this feature.

Regarding independent claims 1, 8, 14 and 15, the Examiner alleges that Moore discloses most of the features of each of independent claims 1, 8, 14 and 15, but concedes that Moore fails to disclose “the foam resin having a foam ratio that is selected so than an impedance of the connection portions substantially match the impedance of the covering of the conductor” (claims or “the foam ratio of the foam element being greater than 0% and 80% or less.” *See* Office Action, p. 5.

To compensate for the deficiency of Moore, the Examiner alleges that Knapp discloses an electrical connector comprising a foam element which has a foam ratio of 35%-55%. Furthermore, the Examiner alleges that it would have been obvious to one skilled in the art to provide the foam element of Moore to have an impedance being closer to the impedance of the conductor. In other words, the Examiner alleges that one of skill would provide the foam

element of Moore with a foam ratio of 35%-55% as taught by Knapp to meet the specific use of the resulting device since a lower ratio would reduce the moisture-proof qualities and a higher ratio would reduce the compressibility of the material. Finally, the Examiner states that the modified assembly of Moore also discloses the foam element including a resin, wherein the impedance of the foam element being closer to impedance of the covering.

In response, Applicants submit that the Examiner is using classic hindsight reconstruction where the claimed invention is trivialized because the Examiner can find some of the individual elements of existing in a number of prior art references.

For example, the proposed motivating factor - “to have an impedance being closer to the impedance of the covering of the conductor” - is found nowhere in any of the prior art references cited by the Examiner. Moreover, this is a specific teaching from Applicants’ own disclosure. In support of Applicants’ position, it is noted that the Federal Circuit is unwavering in its condemnation of hindsight logic. In *Grain Processing Corp. v. American Maize Products Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988), the Federal Circuit stated:

Care must be taken to avoid hindsight reconstruction using the patent in suit as a guide through the maze of prior art references combining the right references in the right way so as to achieve the result of the claims in suit.

(*Id.*)

In this regard, neither Moore nor Knapp disclose matching any impedance values.

Neither reference mentions the term “impedance” within its disclosure or contemplates optimizing the foam ratio to match the impedances. According, the Examiner has failed to make a *prima facie* case of obviousness for at least this reason.

**Knapp's Foam Ratio Does Not Result in Impedance Matching**

More specifically, the Examiner merely cites to a portion of Knapp that discloses using a foam ratio of 35-55%. Knapp does not disclose that this results in impedance matching. In the Response to Arguments section of the Office Action, the Examiner comments:

To understand such claimed terminology and to understand what ratio of the foam resin required performing the claimed function, examiner turns to the applicant's disclosure to find support for the claimed terminology. As supported by the applicant's specification, in order for the impedance of the connection portion matching the covering of the conductor, the foam resin should have a foam ratio of at least 20%, pages 12, lines 5-11.

Final Office Action, pages 11-12.

First, this portion of the specification does not disclose that any foam ratio in excess of 20% will necessarily match the impedance of the connection portions to the covering of the conductor. This portion of the specification indicates that only after the foam ratio exceeds 60% is the impedance approximately constant in a mixture of polypropylene and a foaming agent. *See* page 12, lines 3-4. Also, the specification provides that “[f]rom the above, it was confirmed that adjustment of the foam ratio of the foam resin allows for control of impedance.” Accordingly, to be able to control the impedance using the foam ratio, the impedance must change with a corresponding change in the foam ratio.

Conversely, the Examiner is of the view that the impedance is the same for differing foam ratio - thus, the Examiner concludes that Knapp's broad disclose of using a foam ratio in excess of 20% must necessarily match the impedance of the connection portion to the covering of the conductor. Logically, this is nonsensical unless all coverings have the same impedance and all combinations of a foam resin and a connector housing also have the same impedance as

the coverings (otherwise, they wouldn't match). As evidenced below, this line of reasoning is improper because variations in the foam ratio, do, in fact, result in differing impedance values.

US Patent No. 7,066,768 B2 (Kameyama), which was filed on November 3, 2004 with a priority date of November 12, 2003 (Japan), shows that the Examiner's reliance on a constant impedance value is improper.

For example, Kameyama claims:

a connector, which is connected with a mating connector, comprising:

a plurality of terminals; and

a holder holding the plurality of terminals, being made of **a foamed synthetic resin,**

**wherein a dielectric constant of the foamed synthetic resin of the holder is adjusted by changing an expansion ratio of the formed synthetic resin so as to have impedance matching between said connector and each one of electrical wires connected with the plurality of terminals and the mating connector,**

and the impedance of an assembly of the holder and the terminals is determined by distances between the terminals, sectional areas of the terminals, and the dielectric constant of the holder (*See* Claim 1; Fig. 10).

Notably, Kameyama teaches a relationship between the expansion ratio [%] of the foamed synthetic resin and the impedance thereof [ $\Omega$ ] in a case of polyester as illustrated by a solid curve in FIG. 10 (*See* column 11, lines 43-67). As illustrated in FIG. 10 (reproduced below) the impedance changes with the foam ratio.

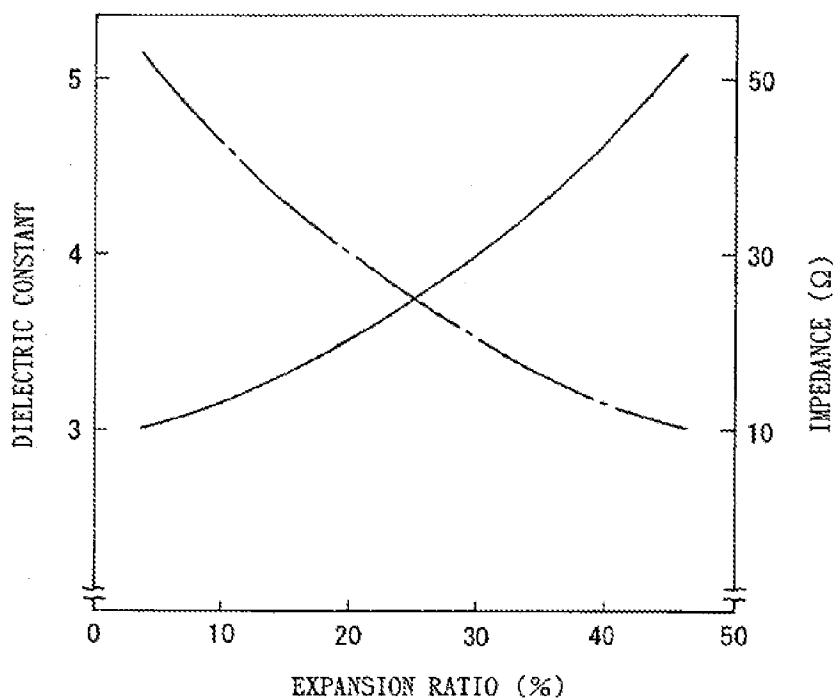


FIG. 10

As such, FIG. 10 is objective evidence that even if one were to rely on Knapp to utilize a foam ratio in excess of 20% - it would not necessarily cause the impedance of a connector to match the impedance of a covering. Rather, dependent upon which value was selected, e.g., 20% or 40%, the impedance of the foam would be 14  $\Omega$  or 40  $\Omega$ . Accordingly, merely relying on Knapp's disclosure to select a foam ratio in excess of 20% does not result in impedance matching.

**Cited Art Fails To Recognize Problem or Solution**

In conclusion, neither Moore nor Knapp recognize the problem (impedance mismatching) or the solution to the problem (selecting the proper foam ratio) of the present specification. Moreover, as confirmed by Kameyama above, merely relying on Knapp's disclosure of using a foam ratio in excess of 20% does not lead to impedance matching. Thus, even if the references

are combined as suggested, they fail to disclose all the features recited in claim 1. Namely, “the impedance control means is a foam resin controlling an impedance in terms of a foam ratio that is selected so that an impedance of the connection portions substantially match the impedance of the covering of the conductor,” as recited in claim 1.

Each of independent claims 1, 8, 14 and 15 recite a similar feature. In claim 1 this feature is recited as “the impedance control means is a foam resin controlling an impedance in terms of a foam ratio that is selected so that an impedance of the connection portions substantially match the impedance of the covering of the conductor.”

Thus, Applicants submit claim 1 is allowable for at least this reason. Additionally, because claims 8, 14 and 15 recite similar features, Applicants these claims are allowable for the same reasons set forth above with regard to claim 1. Lastly, claims 4, 6-7, 9-10, 16 and 21 are allowable, at least by virtue of their dependency.

**Claim Rejections - 35 U.S.C. § 103(a)**

The Examiner rejected claim 5 under § 103(a) as being unpatentable over Moore in view of Knapp in further view of Hutchison (US 4,070,084). T

The Examiner concedes that Moore fails to teach or suggest the connector housing made of a foamed resin, but alleges that Hutchison teaches this feature.

Applicants traverse this rejection because the Moore/Knapp/Hutchison combination does not compensate for the above noted deficiency with regard to the Moore/Knapp combination. Thus, Applicants respectfully submit that neither Moore, Knapp, nor Hutchison, nor their combined teachings, taken as a whole for what they would have meant to the person of ordinary skill, teach or suggest “a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.” The person of ordinary skill would not

have (and could not have) been led by the Moore/Knapp/Hutchison combination to the subject matter of independent claim 1, much less to dependent claim 5. Additional, untaught modifications would still have been required. Applicants therefore respectfully request that the Examiner to withdraw this rejection of claim 5.

**Claim Rejection - 35 U.S.C. § 103(a) - Claim 11**

The Examiner rejected claim 11 as being unpatentable over Moore in view of Knapp in further view of Urushibata et al. (US 5,057,650; “Urushibata”). Applicants traverse this rejection because the Moore/Knapp/Urushibata combination does not compensate for the above noted deficiency with regard to the Moore/Knapp combination.

Thus, Applicants respectfully submit that neither Moore, Knapp, Urushibata, nor their combined teachings, taken as a whole for what they would have meant to the person of ordinary skill, teach or suggest “a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.” The person of ordinary skill would not have (and could not have) been led by the Moore/Knapp/ Urushibata combination to the subject matter of independent claim 1, much less to dependent claim 11. Additional, untaught modifications would still have been required. Applicants therefore respectfully request that the Examiner to withdraw this rejection of claim 11.

**Claim Rejection - 35 U.S.C. § 103(a) -Claim 12**

The Examiner rejected claim 12 as being unpatentable over Moore in view of Knapp in further view of Bates (US 4,864,081). Applicants traverse this rejection because the Moore/Knapp/Bates combination does not compensate for the above noted deficiency with regard to the Moore/Knapp combination.

Thus, Applicants respectfully submit that neither Moore, Knapp, Bates, nor their combined teachings, taken as a whole for what they would have meant to the person of ordinary skill, teach or suggest “a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.” The person of ordinary skill would not have (and could not have) been led by the Moore/Knapp/ Bates combination to the subject matter of independent claim 1, much less to dependent claim 12. Additional, untaught modifications would still have been required. Applicants therefore respectfully request that the Examiner to withdraw this rejection of claim 12.

**Claim Rejections - 35 U.S.C. § 103(a) - Claims 13 and 17**

The Examiner rejected claim 13 and 17 as being unpatentable over Beamenderfer et al (4,834,674; “Beamenderfer”) in view of Knapp.

Applicants traverse this rejection for the same reasons set forth in detail with regard to the rejection of claim 1 under Moore in view of Knapp. In particular, Beamenderfer fails to compensate for the above noted deficiencies with regard to the failure to make a *prima facie* case of obviousness, and similarly, this combination fails to teach “a foam ratio selected to substantially match the impedance of the connection portions with the covering of the conductor,” as recited in claims 13 and 17.

As discussed above, Knapp fails to teach or suggest this feature. Furthermore, Beamenderfer is silent with regard to any foam element wherein a foam ratio is selected to match impedances. Thus, Applicants respectfully submit that claims 13 and 17 are allowable over the applied combination for at least this reason.



**Claim Rejections - 35 U.S.C. § 103(a) - Claims 18 and 20**

The Examiner rejected claims 18 and 20 under § 103(a) as being unpatentable over Ichikawa et al. (5,780,774; “Ichikawa”) in view of Moore and Knapp. Applicants respectfully traverse this rejection as follows.

In the rejection, the Examiner concedes that Ichikawa fails to disclose the pair of resin members being made of a foam resin and molding a resin around the foam resin members. To compensate for this deficiency, the Examiner applies Moore alleging that it discloses an electrical connector comprising foam resin member 72 covering connection portions of the terminal and a conductor and resin 74 around the foam member 72. Then, the Examiner alleges that it would have been obvious to one skilled in the art to use foam resin as taught by Moore et al. for the resin members of Ichikawa to provide a water tight seal over the connection portions. As discussed above, Knapp fails to teach or suggest this feature. Furthermore, Ichikawa is silent with regard to any foam element. Thus, Applicants respectfully submit that claims 18 and 20 are allowable over the applied combination for at least this reason.

**Claim Rejection - 35 U.S.C. § 103(a) - Claim 19**

The Examiner rejected claim 19 as being unpatentable over Ichikawa in view of Bates and Knapp. Applicants respectfully traverse this rejection for reasons identical to those set forth with regard to claim 1. Knapp in combination with Bates and Ichikawa is still deficient in that there is simply no motivation to match any impedance values. Furthermore, Bates and Ichikawa are silent on any impedance values and, further, provide no support for matching any impedance values.

Thus, Applicants submit that independent claim 19 is allowable over the applied combination for at least this reason.

**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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**23373**

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